A simple-leaved Baptisia from the coast prairies of Louisiana, and a supposed hybrid

Roland M. Harper

One or more species of Baptisia are characteristic features of the vegetation of the prairies of Long Island,[1] Arkansas,[2] Louisiana,[3] Oklahoma and Texas,[4] and perhaps other states west of the Mississippi River; but strange to say, none have ever been reported from the prairies of Florida, Alabama and Mississippi, though there are a few species in other habitats in those states.

In traveling through the coast prairies of Louisiana and Texas at various times, mostly in summer, when these plants were not in bloom, I have noted two or more species of Baptisia; and I had a chance to see some of them at close range in eastern Texas in 1918, and identified one as *B. leucophaea* Nutt., and guessed another to be *B. sphaerocarpa* Nutt.[4] These were presumably the same two previously seen from the train in Louisiana.[3]

On July 14, 1934, coming east on the Southern Pacific R.R. through the coast prairies of Texas and Louisiana, I noticed some of the same Baptisias again, at least three species. I stopped off at Lafayette, La., a little east of the prairies, and Miss Annie Frazier, who was teaching botany in the Southwest Louisiana Institute there at the time, kindly took me by automobile back into the prairies the same afternoon, to get a better look at the Baptisias and other plants. Near a crossing about half way between Crowley and Rayne, in Acadia Parish, which I had noted from the train a few hours before as a good Baptisia locality, we stopped to reconnoiter, and soon found what appeared to be three or four species. One was evidently *B. leucophaea*, but the commonest form was a taller and more bushy one with many or most of the leaves simple, and pods in erect racemes. I had never before heard of a simple-leaved Baptisia, except two southeastern species, *B. perfoliata* and *B. simplicifolia;* and although I was not equipped for col-

[1] Mem. Torrey Bot. Club **17**: 269, 271, 274, 280, 281, 283. 1918.
[2] Plant World **17**: 42. 1914.
[3] Torreya **20**: 73. 1920.
[4] Bull. Torrey Bot. Club **47**: 312. 1920.

lecting then, I took a few plants, and managed to make recognizable herbarium specimens of them. Specimens sent later to some of the leading American herbaria were pronounced indistinguishable from *B. sphaerocarpa*, except for the simple leaves (which were not universal).

But even that species had not been credited to Louisiana before, in Small's Flora of the Southeastern United States (1903), R. S. Cocks's notes on the prairies,[5] or his Leguminosae of Louisiana.[6] So it seemed very desirable to find out something about its flowers, to verify the identification; and an opportunity for that came in April, 1936, when I spent a week in southern Louisiana. On the morning of the 7th I went by bus from Lafayette to Midland, intending to walk back through the prairies of Acadia Parish to Rayne, 15 miles, passing the locality where I had collected in 1934. But I found so many interesting plants that I used up all the available time by the time I got to Crowley, about half way.

The prairies in that latitude have now been almost completely given over to rice, sugar-cane and other crops, and there is hardly any natural prairie vegetation left except along the railroad right-of-way (as was said to be the case in Illinois a quarter of a century ago); and that of course is now rather weedy in spots. But I hit exactly the right time to find the Baptisias in bloom, though cloudy and windy weather all day interfered a little with collecting and made photographing difficult.

The *Baptisia sphaerocarpa* (?) was abundant and conspicuous, with dozens of golden yellow flowers on each mature plant, and it is astonishing that it could have been overlooked by all the botanists who had passed that way on the railroad and highway, especially in earlier years when there was much more undisturbed prairie vegetation than there is now.

On looking at thousands of plants of it that day I saw that the unifoliate and trifoliate leaves often occurred on the same plant, but the former were more characteristic of the upper

[5] The flora of the Gulf Biologic Station. Bull. 7, Gulf. Biol. Sta. (at Cameron, La.), 42 pp. 1907. More than six pages are devoted to the flora of the prairies west of Lafayette, but no *Baptisia* is mentioned.

[6] Leguminosae of Louisiana. Nat. Hist. Surv. Bull. 1, La. State Mus. (New Orleans). vi+26 pp., 37 unnumbered plates on 19 unnumbered leaves. Sept. 1910. Nine species of *Baptisia* are listed, one of them new.

branches, and of small plants which looked as if they were not going to bloom that year. It seems likely that this perennial in the first year or two from seed may produce only simple leaves and no flowers, and that trifoliate leaves are most prevalent in the older plants. A condition analogous to this is known in *Erythronium* and *Trillium*, and perhaps many other genera of herbs, which produce small or simple leaves and no flowers in their first few years.

On the way to Midland by bus I had noted a few specimens of *B. leucophaea* along the highway (which closely parallels the railroad most of the way), and on walking back along the railroad I came to some specimens of it before I had gone a mile. It was much less abundant than *B. sphaerocarpa*, and also less conspicuous, on account of being lower, with racemes nodding so that their tips often rested on the ground, and the flowers being paler.

All the *B. leucophaea* there had lemon-yellow flowers, instead of cream-colored as in the Grand Prairie of Arkansas (and in the closely related *B. bracteata* of dry woods of Middle Georgia and Alabama), but that does not necessarily indicate that it should be regarded as a different variety, though it could perhaps properly be called a form, as in the case of *Sitilias caroliniana*, which has both yellow and cream-colored flowers in different plants, as I pointed out a few years ago.[7] I had seen the same form a few days before, with Prof. C. A. Brown, in cut-over long-leaf pine uplands in St. Helena Parish. (Incidentally that seems to be the first time it had been found east of the Mississippi River; and it is not mentioned in Small's Manual of the Southeastern Flora, 1933).

Continuing eastward, I soon began to see another Baptisia, that appeared intermediate between the two just mentioned. I did not pay much attention to it at first, thinking I would not collect it until I saw more of it, not wishing to endanger the supply if it was anything rare. But after walking four or five miles I noticed that there was no more *B. leucophaea* in sight, and the intermediate form was likewise missing. I was cogitating whether to go back to where I had last seen the unfamiliar plant, when I came upon *B. leucophaea* again, about a mile west of Crowley, and immediately the intermediate form too. I then decided to take no more chances of missing it, and col-

[7] Torreya **33**: 143–146. 1933.

lected as many specimens of *B. sphaerocarpa* (no. 3475) and the intermediate (no. 3476) as I could manage, leaving *B. leucophaea* because that was well known and my portfolio was already too full. Photographs of all three were attempted, but turned out poorly on account of the clouds, wind, and a little camera trouble.

As the intermediate form was found only in close proximity to the other two, and not where *B. sphaerocarpa* was abundant and *B. leucophaea* absent, it is a reasonable assumption that it is a hybrid. Apparently there are few if any definite records of hybrids in *Baptisia*, though Prof. Hitchcock found a plant in the vicinity of Manhattan, Kansas, which he believed to be a hybrid between *B. australis* and *B. leucophaea*;[8] and *B. microphylla* Nutt. (*B. stipulacea* Ravenel), found near Aiken, South Carolina, by several 19th century collectors, but apparently not by any one now living, is strongly suspected to be a hybrid between *B. perfoliata* and some other species. Hybrids have often been given specific names, but there seems to be no advantage in doing so when the parentage is reasonably certain. And it is not even necessary to describe this plant, for an average of the existing descriptions of the two parents should suffice.

The simple leaves of many specimens of *B. sphaerocarpa* have been mentioned above. That characteristic did not seem to be passed on to the hybrid, for all the leaves I saw on it were trifoliate. But, as already noted, the simple leaves are more characteristic of juvenile plants, and perhaps *B. sphaerocarpa* does not produce hybrid progeny until it has outgrown that stage. (That is something for the geneticists to work on, if they are interested.)

From the description of Small's *Baptisia Bushii*, from Texas, I guessed that that might be the same as my hybrid, for *B. leucophaea* and *B. sphaerocarpa* are both known from Texas, and may grow in proximity and hybridize there. But Miss Maxine Larisey, who is studying Baptisia at the Missouri Botanical Garden, has compared my plant with authentic specimens of *B. Bushii*, and thinks they are not the same. Perhaps this note will stimulate some trans-Mississippi botanist to investigate it, and some of the other problems outlined here.

UNIVERSITY, ALA.

[8] A. S. Hitchcock, Bot. Gaz. **19**: 42. 1894. Also referred to incidentally in Robinson & Fernald's ("Gray's") Manual (1908), page 506.